

# Engineering and Capital Projects



## Department Description

The Engineering and Capital Projects Department (E&CP) provides a full range of engineering services for the City's capital investment in its various types of infrastructure and provides traffic engineering services to the community. The Department is responsible for the planning, design, project management, and construction management of public improvement projects; quality control and inspection of private work permitted in the right-of-way; surveying and materials testing; and providing traffic operations and transportation engineering services. The Department's activities include work on various public infrastructure assets to rehabilitate, restore, improve, and add to the City of San Diego's capital facilities. The Capital Improvement Program (CIP) covers a wide range of projects including libraries; fire, lifeguard and police stations; parks and recreation centers; lighting and signals, street improvements, bikeways and other transportation projects; drainage and flood control facilities; rebuilding and expanding water and sewer pipelines, treatment plants, and pump stations; and dry utilities under-grounding projects. Traffic engineering services include transportation system forecasting and program management, responding to traffic requests from the public, maintaining the City's traffic signal systems, and traffic safety analyses.

These functions are provided through five divisions within the Department.

### **Architectural Engineering & Parks Division**

This Division manages the implementation of non-right-of-way and vertical capital improvement projects. This responsibility includes the design and project management of public buildings, parks, recreation facilities, airport-related projects, water and sewer treatment plants, reservoirs, and pump station projects.

### **Field Engineering Division**

This Division manages construction contracts, materials testing, land surveying services, and geological assessment/support. This responsibility includes quality assurance/quality control inspection of CIP, projects on City property or within the City's right of way, inspection of private land development of public infrastructure, land survey support for design mapping/construction staking, traffic engineering support during construction, and testing of construction materials in the field and at manufacturing facilities throughout the region.

### **Project Implementation and Technical Services Division**

The Division provides centralized technical, operational, and project support services to the other divisions within the Department, as well as other departments in the City. These services include preliminary engineering and asset management, project controls, CIP fund management, Americans with Disabilities Act (ADA) compliance review

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for CIP projects, quality control and standards, environmental and permitting assistance, community outreach, and information technology.

## **Right-of-Way Design Division**

This Division manages the implementation of right-of-way and related horizontal capital improvement projects. This responsibility includes the design and project management of water and sewer pipelines, transportation and street-related projects, bridges, flood plains and drainage infrastructure, signals, streetlights, and utilities under-grounding projects.

## **Transportation System Engineering & Operations Division**

This Division manages and coordinates the planning, modeling, and efficient and safe operation of the City's transportation system. This responsibility includes program management and coordination with regional transportation agencies; traffic investigations and studies for signs, markings, traffic control devices, speeding concerns, and parking issues; accident data analyses; traffic signal systems management; traffic studies including traffic counts and radar speed surveys; and investigation and programming of street lights, pedestrian safety and safe routes to school projects.

The Department's mission is:

*To provide exceptional engineering services including technical and operational support, design and construction for the Capital Improvement Program, oversight of development of public infrastructure and facilities, and transportation system management*

## Goals and Objectives

The following goals and objectives represent the action plan for the Department:

### ***Goal 1: Provide courteous, accessible, seamless and responsive services to foster partnerships and strengthen relationships with communities, industry, service providers, and customers***

With customers being the focal point of how E&CP delivers services, this goal is the starting point for achieving objectives. The Department recognizes that our customers play a crucial role in how, when and why we deliver a product. The Department will move toward accomplishing this goal by focusing on the following objectives.

- Communicate clearly and effectively and collaborate with internal and external customers
- Manage customer expectations to achieve customer satisfaction
- Deliver services seamlessly to customers

### ***Goal 2: Manage and utilize personnel and processes to effectively and efficiently deliver projects***

We must ensure the delivery of an efficient and effective product or service to our customer. The Department will move toward accomplishing this by focusing on the following objectives.

- Deliver capital projects on time and in a cost effective manner
- Deliver the overall capital program in accordance with the annual execution plans

### ***Goal 3: Implement a uniform and objective ranking system to prioritize all CIP projects effectively and efficiently***

This goal is focused on making sure that we are targeting our CIP resources toward our greatest needs. The Department will move toward accomplishing this by focusing on the following objective.

- Institute and maintain a project prioritization system to include all asset classes and project types

### ***Goal 4: Manage resources to effectively respond to transportation operations requests***

This goal is focused on making sure that transportation operations requests are resolved in a timely manner. The Department will move toward accomplishing this by focusing on the following objective.

- Evaluate and respond to traffic requests in a high quality, professional, and timely manner

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## Service Efforts and Accomplishments

During Fiscal Year 2008, the Engineering and Capital Projects Department delivered design services and managed construction for over \$350 million worth of capital improvement projects. In addition, the Department provided construction inspection of over \$100 million in permitted work for City-owned infrastructure. A sampling of capital improvement projects undertaken during Fiscal Year 2008 is as follows:

- **Structures and Libraries:** Roof replacements for the Museum of Art, Old Globe Theater, Museum of Man (Phase 1), Malcolm X Library, and Main Library. Construction of North University Community Branch Library, Nobel Recreation Center and Athletic Area, Logan Heights Branch Library, Pacific Highlands Ranch Fire Station 47, and Lifeguard Headquarters Boat Dock Facility. Renovation of Fire Station #1 (Downtown).
- **Parks:** Construction of Hilltop Community Park Development, Del Mar Mesa Neighborhood Park, Carmel Valley Skate Park, Carmel Valley Community Park South Recreation Center and Black Mountain Ranch Neighborhood Park North. Upgrades to Redwood Neighborhood Park. Improvements to Torrey Pines Golf Course.
- **Water and Sewer Facilities:**
  - 10 miles of sewer main replacements
  - 25 miles of water main replacements
  - Completion of the second phase of the upgrade of Miramar Water Treatment Plant (WTP)
  - Upgrade of Rancho Bernardo Reservoir
  - Initiation of the second phase of the upgrade of Otay WTP
  - Initiation of the third phase of the upgrade of Miramar WTP
  - Initiation of the fourth phase of the upgrade of Alvarado WTP
- **Utilities Undergrounding:** Approximately 22 miles of overhead utilities (electric, phone, cable) removed from overhead poles and placed underground.
- **Transportation:** Work was done on the following projects: Bayshore Bikeway, Kensington Manor No. 1 Street Light Circuit Upgrade, West Point Loma Boulevard Sidewalk (Temecula to Rialto), Barnett Avenue Bridge over Pacific Highway Barrier Rail, 47th & T Street Traffic Signal, 28th Street Guardrail, San Ysidro Streetlights, Friars Road/Pacific Highway Bike Path, and Reo Drive Street.
- **Americans with Disabilities Act (ADA):** ADA upgrades to Balboa Clubhouse, Tennis Lounge Concession, Clairemont Branch Library, North Clairemont Library, Skyline Branch Library, University City Branch Library, and La Jolla Fire Station # 13.
- **Drainage:** Storm Drain Replacements were completed at 6th Avenue and Camino de la Costa.

Engineering and Capital Projects also provided program management services for the transportation capital improvement projects; responded to requests for investigation of traffic, bicycle and pedestrian issues; evaluated requests for street lights and all-weather walkways/safe routes to school; and managed the Red Light Photo Enforcement Program. The Department has tiered the required turnaround times for traffic operations investigations and responses to constituent concerns/requests based on complexity and type of request, with 30, 60 and 90-day standards (depending on urgency), with the goal of completing the requests within these standards 90 percent of the time. The Department met this goal.

Finally, in Fiscal Year 2008, the Department responded to two major incidents: the Soledad Mountain Landslide and the October 2007 wildfires. E&CP staff initially responded to the landslide and have led the subsequent efforts to stabilize the area and rebuild Soledad Mountain Road and Desert View Alley. Response to the wildfires included directly supporting first responders; significant coordination at QUALCOMM Stadium evacuation center; coordination with the Local Assistance Center established in Rancho Bernardo, including advising residents on erosion control issues; and technical support for the debris clean-up and erosion control activities in the wildfire burn areas.

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## Budget Dollars at Work: Performance Expectations

**Goal 1: Provide courteous, accessible, seamless, and responsive services to foster partnerships and strengthen relationships with communities, industry, service providers, and customers**

Performance Measure	Baseline FY2007	Actual FY2008	Target FY2009
1. Percent of employees provided in-service training	N/A	N/A	50%
2. Percent of employees trained for specified applicable standard operating procedures	N/A	N/A	80%

**Goal 2: Manage and utilize personnel and processes to effectively and efficiently deliver projects**

Performance Measure	Baseline FY2007	Actual FY2008	Target FY2009
1. Percent of CIP projects for which soft costs (planning, design, project management, and construction management) do not exceed the statewide benchmarking averages	N/A	N/A	90%
2. Percent of CIP projects executed within 5% of their baseline schedule	N/A	N/A	80%
3. Percent of CIP projects delivered within the approved baseline schedule and cash expenditures (earned value)	N/A	N/A	85%

**Goal 3: Implement a uniform and objective ranking system to prioritize all CIP projects effectively and efficiently**

Performance Measure	Baseline FY2007	Actual FY2008	Target FY2009
1. Percent of projects scored using prioritization rankings for CIP projects governed under Council Policy 800-14	N/A	56% of Transportation Projects 0% of all other projects	100% of Transportation Projects 25% of all other projects

**Goal 4: Manage resources to effectively respond to transportation operations requests**

Performance Measure	Baseline FY2007	Actual FY2008	Target FY2009
1. Percent of Traffic Operations requests responded to within assigned 30/60/90 day turnaround timeframes	90.0%	88.3%	90.0%

## Budget Dollars at Work: Sizing and Workload Data

	Actual FY2005	Actual FY2006	Actual FY2007	Actual FY2008	Target FY2009
<b>Workload Data</b>					
Total value of CIP projects in construction	\$226M	\$149M	\$108M	\$162M	\$312M
Total number of CIP projects in construction	84	47	38	85	153
Total value of adopted CIP	\$583M	\$390M	\$294M	\$492M	\$500M
Total number of CIP projects in design	205	222	249	192	131
Miles in contracts awarded for replacement of water mains	6.2	5.4	6.1	25.0	20.0

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	<b>Actual FY2005</b>	<b>Actual FY2006</b>	<b>Actual FY2007</b>	<b>Actual FY2008</b>	<b>Target FY2009</b>
Miles of sewer mains replaced or rehabilitated	40.23	28.11	25.98	24.12	55
Miles of dry utilities undergrounded	11.2	22.7	20	21.7	23.6
Value of private agency Community Development Block Grant (CDBG) funds managed	\$2.4M	\$1.7M	\$2.5M	\$2.8M	\$2.1M
Value of construction inspection of permitted work for City-owned infrastructure	\$134M	\$132M	\$134M	\$128M	\$120M
Number of traffic signals retimed and optimized	50	120	160	250	250
Number of traffic/parking requests responded to	6,065	5,197	7,244	7,500	7,500